2005. The Journal of Arachnology 33:175–192

# NOTES ON THE GENUS *BRACHISTOSTERNUS* (SCORPIONES, BOTHRIURIDAE) IN CHILE, WITH THE DESCRIPTION OF TWO NEW SPECIES

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**ABSTRACT.** Two new species of *Brachistosternus* from Chile are described. *Brachistosternus* (*Leptosternus*) *cekalovici* new species can be distinguished from most other species of the genus because the divided dorsal gland of the telson. The closest species are *B.* (*L.*) *artigasi* Cekalovic 1974 and *B.* (*L.*) *negrei* Cekalovic 1975, for which redescriptions are provided. *Brachistosternus cekalovici* has only been collected in "Tres Cruces", Coquimbo Province, Chile. *Brachistosternus* (*Leptosternus*) *mattonii* new species is also described. This species is most closely related to *B.* (*L.*) *donosoi* Cekalovic 1974, from which it can be distinguished by its more densely granular tegument (especially on the ventral surface of the metasoma), hemispermatophore with more developed internal spines, and the lack of a telson gland. A redescription of *B. donosoi* is also provided. Both species are related to the Argentine plains species, whilst *B.* (*L.*) *artigasi*, *B.* (*L.*) *cekalovici* and *B.* (*L.*) *negrei* seem to be more related to the Andean species of the subgenus *Leptosternus*.

**RESUMEN.** Notas sobre el género *Brachistosternus* (Scorpiones, Bothriuridae) en Chile, con la descripción de dos nuevas especies. En el presente artículo se describen dos nuevas especies del género *Brachistosternus* de la República de Chile. *Brachistosternus* (*Leptosternus*) *cekalovici* new species puede diferenciarse de la mayoría de las especies descriptas del género porque la glándula de la cara dorsal del telson, está dividida en dos mitades separadas. Las especies más relacionadas son *B.* (*L.*) *artigasi* Cekalovic 1974 y *B.* (*L.*) *negrei* Cekalovic 1975; en este trabajo se brindan también las redescripciones de ambas especies. *Brachistosternus cekalovici* sólo ha sido colectada en la localidad de Tres Cruces, en la provincia de Coquimbo, Chile. *Brachistosternus* (*Leptosternus*) *mattonii* n. sp se encuentra estrechamente relacionada con *B.* (*L.*) *donosoi* Cekalovic 1974, puede diferenciarse de ella por poseer un tegumento más granuloso, especialmente en la faz ventral del metasoma, por el mayor desarrollo de las espinas internas del hemiespermatóforo y por carecer de la glándula del telson. Tambien se brinda la redescripción de *B. donosoi*. Ambas especies se encuentran relacionadas con las especies argentinas de llanura, mientras que *B.* (*L.*) *artigasi*, *B.* (*L.*) *cekalovici* y *B.* (*L.*) *negrei* parecen estar más relacionadas con las especies andinas del subgénero *Leptosternus*.

**Keywords:** Scorpiones, *Brachistosternus*, new species, South America, biogeography, taxonomy

The genus *Brachistosternus* has been studied in Chile by Kraepelin (1911), Mello-Leitão (1941), Ochoa & Acosta (2002) and especially by Cekalovic (1970, 1973, 1974, 1975). There are records of this genus from Arica to Talca (Cekalovic 1974, 1975), but it is particularly diverse in northern and central Chile, the most arid regions of the country. Several specimens of *Brachistosternus* from this region were examined by the author, who recognized several unnamed species of the subgenus *Leptosternus*, most of them from coastal areas and high mountain habitats in the Andes. Both regions include environments that are slightly more humid than those found in the extremely xeric surrounding regions.

The species of *Brachistosternus* are always distributed in well-defined elevations; therefore the peculiar orography of Chile favors the presence of several different species within small geographic areas. A similar distributional pattern of the genus has been observed in northwestern Argentina (Ojanguren Affilastro 2002a).

*Brachistosternus* (*Leptosternus*) *cekalovici* new species and *Brachistosternus* (*Leptosternus*) *mattonii* new species are described here. In the first species the dorsal gland of the telson (Roig Alsina & Maury 1981) is divided

into separate halves. So far, only *Timogenes mapuche* Maury 1975, *T. sumatranus* Simon 1880 and some specimens of *B.* (*Leptosternus*) *negrei* Cekalovic 1975 share this characteristic within the family Bothriuridae (Maury 1975, 1982; De la Serna de Esteban 1977; Prendini 2000).

*Brachistosternus cekalovici* is very similar to *B.* (*L.*) *artigasi* Cekalovic 1974 and *B.* (*L.*) *negrei*. Although the original descriptions of *B. artigasi* and *B. negrei* given by Cekalovic (1974, 1975) are very complete, some characters currently used in the systematics of the genus remain undescribed; therefore the redescriptions of these species are provided.

*Brachistosternus* (*L.*) *mattonii* is described here and compared to the closely related species *B.* (*L.*) *donosoi* Cekalovic 1974. So far, this species has only been collected from coastal environments of northwestern Chile.

## METHODS

The terminology of the hemispermatophores structures follows Maury (1974). Trichobothrial terminology follows Vachon (1974). Terminology of the telson gland follows Roig Alsina & Maury (1981). Terminology of the metasomal carinae follows Stahnke (1970). Abbreviations are as follows: MACN-Ar = Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", National Arachnological Collection (Cristina Scioscia); ARA = Arturo Roig Alsina personal collection; IADIZA = Instituto Argentino de Investigación de las Zonas Áridas (Sergio Roig Juñent); MZUC = Museo de Zoología de la Universidad de Concepción (Jorge Artigas); AMNH = American Museum of Natural History, New York, USA; AAOA = Andrés Alejandro Ojanguren Affilastro personal collection; FKPC = František Kovařík personal collection, Prague, Czech Republic. All measurements are given in mm and were taken using an ocular micrometer. Illustrations were produced using a stereomicroscope and camera lucida. The hemispermatophores were dissected from surrounding tissues and observed in 80% ethanol.

## TAXONOMY

Family Bothriuridae Simon
Genus *Brachistosternus* Pocock
***Brachistosternus* (*Leptosternus*) *cekalovici***
new species
Figs. 1–13, 58

**Type specimens.**—Holotype male, CHILE: *Coquimbo Province*: Tres Cruces (29°22′24″S, 70°56′2″W), 10 January 1984, Maury (MACN-Ar 10243). Paratypes: CHILE: *Coquimbo Province*: Tres Cruces, 7 ♂, 4 ♀ and 2 juveniles, 10 January 1984, Maury (MACN-Ar 10244); 2 ♂ and 2 ♀, 10 January 1984, Maury (MZUC).

**Other material examined.**—CHILE: *Coquimbo Province*: Tres Cruces, 10 January 1984, 8 ♂, 6 ♀ and 3 juveniles, Roig Alsina (ARA).

**Etymology.**—This species is named after the Chilean arachnologist Dr. Tomás Cekalovic Kuschevich.

**Diagnosis.**—*Brachistosternus* (*L.*) *cekalovici* can be distinguished from most other species of the genus because the dorsal gland of the telson is divided into separate halves (Fig. 8). Only some specimens of *B. negrei* share this characteristic (Fig. 53), but in most specimens of this species, this gland is absent. *Brachistosternus negrei* can be distinguished from *B. cekalovici* because it lacks the ventromedian carina of the fifth metasomal segment (Fig. 52) that is present in *B. cekalovici* (Fig. 5), and because it has two ventromedian stripes on metasomal segments II and III that are absent in *B. cekalovici*.

*Brachistosternus cekalovici* is most closely related to *B. artigasi*. Besides the shape of their telson glands (Figs. 8, 19) both species can be distinguished by the different shape of their caudal glands or androvestigia (Cekalovic 1973). In *B. artigasi* they occupy approximately 50% of the dorsal surface of the fifth metasomal segment (Fig. 17), whereas in *B. cekalovici* they occupy less than 25% (Fig. 4). *Brachistosternus* (*Leptosternus*) *galianoae*

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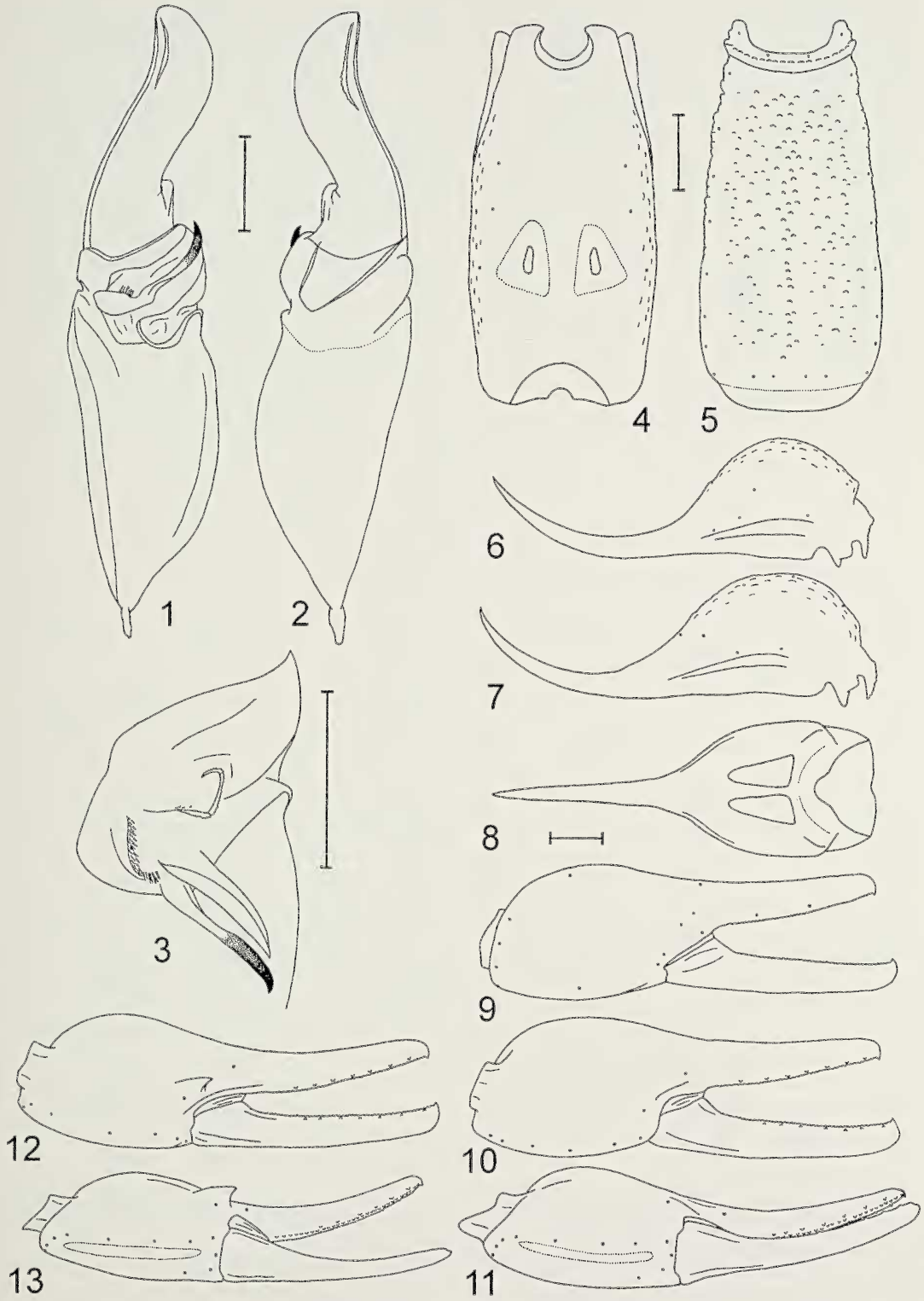
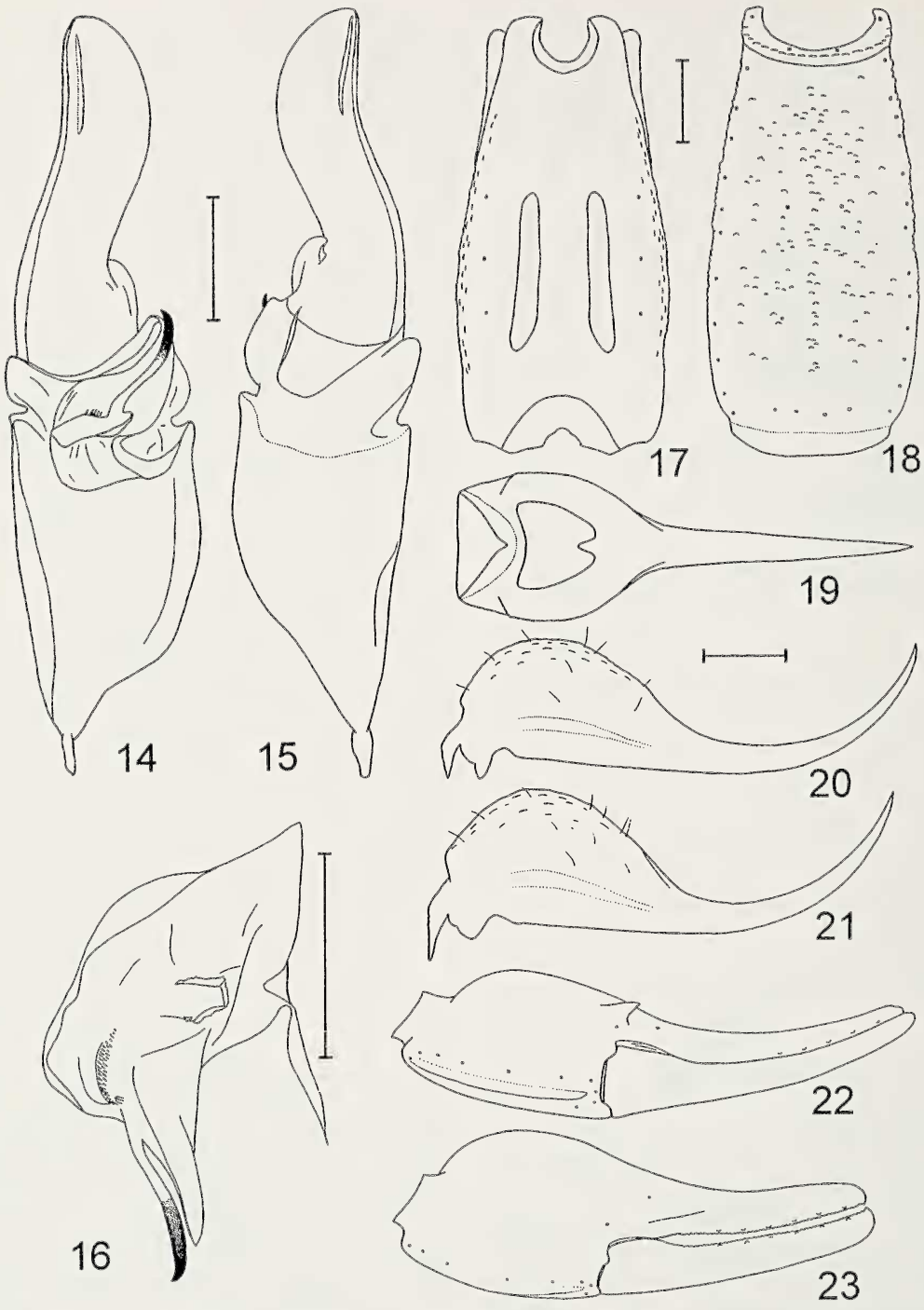
Figures 1–13.—*Brachistosternus* (*Leptosternus*) *cekalovici*: 1. Left hemispermatophore, ventral aspect; 2. Left hemispermatophore, dorsal aspect; 3. Left hemispermatophore, detail of the lobe region; 4. Fifth metasomal segment, male, dorsal aspect; 5. Fifth metasomal segment, ventral aspect; 6. Telson, male, lateral aspect; 7. Telson, female, lateral aspect; 8. Telson, male, dorsal aspect. 9. Right pedipalpal chela,




female, retrolateral aspect; 10. Left pedipalpal chela, female, prolateral aspect; 11. Left pedipalpal chela, female, ventral aspect; 12. Left pedipalpal chela, male, prolateral aspect; 13. Left pedipalpal chela, male, ventral aspect. Scale bars = 1 mm.




Figures 14–23.—*Brachistosternus* (*Leptosternus*) *artigasi*: 14. Left hemispermatophore, ventral aspect; 15. Left hemispermatophore, dorsal aspect; 16. Left hemispermatophore, detail of the lobe region; 17. Fifth metasomal segment, male, dorsal aspect; 18. Fifth metasomal segment, ventral aspect; 19. Telson, male, dorsal aspect; 20. Telson, male, lateral aspect; 21. Telson, female, lateral aspect; 22. Left pedipalpal chela, male, ventral aspect; 23. Left pedipalpal chela, female, prolateral aspect. Scale bars = 1 mm.

Ojanguren Affilastro 2002, a species from Bolivia, also has such small caudal glands, but it has a single telson gland (Ojanguren Affilastro 2002b).

**Description.**—*Color:* General color dark yellow with a dusky pattern. Carapace with a dark stripe from the lateral ocelli to the postocular furrow; ocular tubercle black; the rest without pigmentation except for two posterolateral dark spots. Tergites with three spots, two lateral and a median spot, connected by a dark reticulated pigment. Sternites depigmented. Metasomal segments dorsally with two posterolateral dark spots and a median spot; segments I–III ventrally with two lateroventral stripes; IV with two lateroventral stripes and two median stripes that converge with the lateroventral stripes in the posterior margin of the segment; V with two lateroventral stripes and a median stripe that converge in the posterior margin of the segment where there is abundant reticulated pigmentation. Telson faintly spotted on the ventral surface. Legs with some spots on the prolateral sides of the femur and patella. Pedipalps: femur and patella with some spots on the retrolateral surface.

*Morphology:* Measurements of male holotype (MACN-Ar 10243) and a female paratype (MACN-Ar 10244) in Table 1. *Prosoma*: Chelicerae with two subdistal teeth in the movable finger; anterior edge of the carapace with a slight median bulge and six setae, two on each side and two in the middle; tegument slightly granular; anterior and posterior longitudinal sulcus, lateral sulcus and postocular furrow deeply marked; ocular tubercle medially situated on the carapace with a slight interocular sulcus, median ocelli two diameters apart with a seta behind each. *Sternum*: Sternum type 2 (Soleglad & Fet 2003), much wider than long; apex width equal to posterior width; posterior emargination quite well developed, with convex lateral lobes conspicuously separated. *Mesosoma*: Tergites I–VI smooth near the anterior margin and finely granular near the posterior margin; VII smooth medially, the rest densely granular, with two posterolateral carinae. *Metasoma*: Segment I: ventral surface smooth with three pairs of ventral setae, lateral surface with scattered granulation, dorsally smooth, dorsosubmedian, dorsolateral and median lateral carinae extend the entire length of the segment; segments II and III similar to segment I but less granular, with less well developed carinae and with four pairs of ventral setae; segment IV: dorsally smooth, lateral surfaces with sparse granulation, ventrally smooth with a large number of scattered setae; segment V: ventral surface irregularly granular, ventromedian and ventrolateral carinae extend the entire length of the segment (Fig. 5); dorsal and lateral surfaces finely granular or smooth; ventral setae usually comprising 4 rows: 1 basal row of 4 setae, and 3 posterior rows of 1 or 2 setae, in some specimens there is an additional row of 1 or 2 setae; in males the caudal glands occupy approximately 10 or 20% of the dorsal surface (Fig. 4). *Telson*: Sparsely granular; vesicle with rounded ventral surface; aculeus slightly curved, of the same length as the vesicle (Figs. 6 & 7); the dorsal gland of the telson is divided into two separated halves (Fig. 8), but in less than 10% of the examined specimens joined in the anterior margin. *Pedipalps*: Trichobothrial pattern, neobothriotaxic major type C: femur with 3 trichobothria: 1 *d*, 1 *i* and 1 *e*; patella with 3 ventral trichobothria, 2 dorsal trichobothria, 1 internal trichobothrium, and 13 external trichobothria: 3 *et*, 1 *est*, 2 *em*, 2 *esb* and 5 *eb*; chela with 27 trichobothria: 1 *Est*, 5 *Et*, 5 *v*, 1 *Esb*, 3 *Eb*, 1 *Dt*, 1 *Db*, 1 *et*, 1 *est*, 1 *esb*, 1 *eb*, 1 *dt*, 1 *dst*, 1 *dsb*, 1 *db*, 1 *ib*, 1 *it*; no intraspecific variation has been observed in these characters. Femur smooth, ventrointernal and dorsointernal carinae poorly developed, patella scarcely granular and without carinae; chela stout with relatively short fingers, smooth tegument, with a very developed ventroexternal carina (Figs. 9–13); in males the prolateral apophysis is well developed; movable finger with a central row of granules and 7 or 8 internal and external granules. *Legs*: finely granular; telotarsi I and II with the inner ungue 10–15% shorter than the external. *Hemispermatophore*: Distal lamina thick, slightly curved, and shorter than the basal portion (Figs. 1 & 2); cylindrical apophysis well developed, longer than the laminar apophysis; basal triangle well developed, formed by three or four crests (Fig. 3); internal spines absent; basal spines well developed; row of spines well developed, these spines can be branched in some specimens, and in some cases they can have up to three points.

**Variation.**—Total length in males, 50–55

Table 1.—Measurements (mm), number of pectinal teeth and telotarsal setae: *Brachistosternus cekalovici* new species, male holotype (MACN-Ar 10243) and female paratype (MACN-Ar 10244), and *Brachistosternus mattonii* new species, male holotype (MACN-Ar 10235) and female paratype (MACN-Ar 10236).

| | *Br. (L.) cekalovici* | | *Br. (L.) mattonii* | |
|---|---|---|---|---|
| | Male holotype | Female paratype | Male holotype | Female paratype |
| Total length | 51.03 | 51.63 | 54.46 | 52.92 |
| Carapace, length | 5.66 | 6.92 | 5.74 | 6.14 |
| Carapace, anterior width | 4.20 | 4.44 | 3.88 | 4.53 |
| Carapace, posterior width | 6.38 | 6.71 | 6.3 | 6.87 |
| Mesosoma, total length | 13.86 | 13.53 | 14.83 | 15.75 |
| Metasoma, total length | 24.4 | 24.15 | 20.09 | 17.29 |
| Metasomal segment I, length | 3.72 | 4.36 | 4.61 | 4.04 |
| Metasomal segment I, width | 3.07 | 3.23 | 3.72 | 3.55 |
| Metasomal segment I, height | 3.96 | 4.04 | 2.83 | 2.83 |
| Metasomal segment II, length | 4.44 | 4.36 | 5.09 | 4.44 |
| Metasomal segment II, width | 3.15 | 3.15 | 3.31 | 3.07 |
| Metasomal segment II, height | 3.72 | 3.55 | 2.99 | 2.83 |
| Metasomal segment III, length | 4.85 | 4.36 | 5.09 | 4.61 |
| Metasomal segment III, width | 3.15 | 2.99 | 3.23 | 2.99 |
| Metasomal segment III, height | 3.47 | 3.31 | 2.67 | 2.51 |
| Metasomal segment IV, length | 5.33 | 5.01 | 5.74 | 5.25 |
| Metasomal segment IV, width | 2.91 | 2.75 | 2.99 | 2.83 |
| Metasomal segment IV, height | 3.23 | 3.07 | 2.54 | 2.34 |
| Metasomal segment V, length | 6.06 | 6.06 | 6.46 | 5.82 |
| Metasomal segment V, width | 2.51 | 2.42 | 3.23 | 2.82 |
| Metasomal segment V, height | 3.23 | 3.07 | 2.51 | 2.18 |
| Telson, length | 7.11 | 7.03 | 6.9 | 6.87 |
| Vesicle, length | 3.64 | 3.39 | 3.88 | 3.64 |
| Vesicle, width | 2.42 | 2.18 | 2.75 | 2.34 |
| Vesicle, height | 1.94 | 1.90 | 2.18 | 2.1 |
| Aculeus, length | 3.47 | 3.64 | 3.75 | 3.23 |
| Pedipalp, total length | 15.67 | 14.30 | 15.84 | 16.96 |
| Femur, length | 4.12 | 3.55 | 5.09 | 4.68 |
| Femur, width | 0.81 | 1.37 | 1.37 | 1.37 |
| Patella, length | 4.04 | 3.72 | 4.44 | 4.2 |
| Patella, width | 1.45 | 1.62 | 1.62 | 1.62 |
| Chela, length | 7.51 | 7.03 | 9.13 | 8.08 |
| Chela, width | 1.86 | 1.86 | 2.59 | 1.94 |
| Chela, height | 2.34 | 2.51 | 3.07 | 2.58 |
| Movable finger, length | 4.53 | 4.36 | 5.33 | 5.01 |
| Fixed finger, length | 4.01 | 3.87 | 4.9 | 4.72 |
| Number of pectinal teeth, left-right | 34-34 | 28-29 | 39-39 | 28-29 |
| Telotarsus I, ventrointernal setae | 3 | 3 | 4 | 3 |
| Telotarsus I, ventroexternal setae | 5 | 3 | 0 | 0 |
| Telotarsus I, dorsal setae | 10 | 9 | 8 | 8 |
| Telotarsus II, ventrointernal setae | 5 | 5 | 5 | 5 |
| Telotarsus II, ventroexternal setae | 5 | 3 | 4 | 4 |
| Telotarsus II, dorsal setae | 12 | 9 | 7 | 7 |
| Telotarsus III, ventrointernal setae | 9 | 9 | 7 | 7 |
| Telotarsus III, ventroexternal setae | 5 | 6 | 5 | 6 |
| Telotarsus III, dorsal setae | 13 | 12 | 10 | 10 |
| Telotarsus IV, ventrointernal setae | 6 | 5 | 4 | 5 |
| Telotarsus IV, ventroexternal setae | 4 | 5 | 4 | 5 |
| Telotarsus IV, dorsal setae | 6 | 6 | 5 | 4 |

mm ($n$ = 15; mean = 52.9), 51–59 mm in females ($n$ = 10; mean = 54.8). Length/width ratio of the fifth metasomal segment 1.81–2.22 ($n$ = 10; mean = 2.01). Pectines with 33–36 pectinal teeth in males ($n$ = 15; median = 35) and 28–32 in females ($n$ = 10; median = 30). Length/height ratio of the pedipalpal chela 3.04–3.17 in males ($n$ = 15; mean = 3.11) and 2.74–3.12 in females ($n$ = 10; mean = 2.87). Telotarsus I with 3 or 4 ventrointernal setae ($n$ = 20; median = 3), 3–5 ventroexternal setae ($n$ = 20; median = 3) and 9 or 10 dorsal setae ($n$ = 20; median = 10). Telotarsus II with 5 or 6 ventrointernal setae ($n$ = 20; median = 5), 3 to 5 ventroexternal setae ($n$ = 20; median = 3) and 9 to 12 dorsal setae ($n$ = 20; median = 10). Telotarsus III with 8 or 9 ventrointernal setae ($n$ = 25; median = 8), 5–7 ventroexternal setae ($n$ = 25; median = 6) and 11–14 dorsal setae ($n$ = 25; median = 12). Telotarsus IV with 5 or 6 ventrointernal setae ($n$ = 25; median = 6), 4 or 5 ventroexternal setae ($n$ = 25; median = 5) and 6 or 7 dorsal setae ($n$ = 25; median = 6). Fourth metasomal segment with 31–38 ventral setae ($n$ = 20; median = 36). Fifth metasomal segment with 9–12 ventrolateral setae ($n$ = 25; median = 10), and 8–12 lateral setae ($n$ = 25; median = 9).

**Distribution.**—This species has only been collected at the type locality (Fig. 58).

***Brachistosternus* (*Leptosternus*) *mattonii***
new species
Figs. 24–35, 41, 58

**Type specimens.**—Holotype male, CHILE: *Antofagasta Province*: Hornitos (22°55′S, 70°18′W), 2 October 1983, Maury (MACN-Ar 10235). Paratypes: CHILE: *Antofagasta Province*: Antofagasta (23°39′S, 70°24′W), 1 ♀, 22 October 1982, Maury (MACN-Ar 10236); Hornitos, 1 ♂, 6 October 1983, Roig Alsina (MACN-Ar 10245). *Iquique Province*: Alto Patache (20°45′S, 70°9′W), 1 juvenile ♂, 26 August 1998, C. Moreira (FKPC).

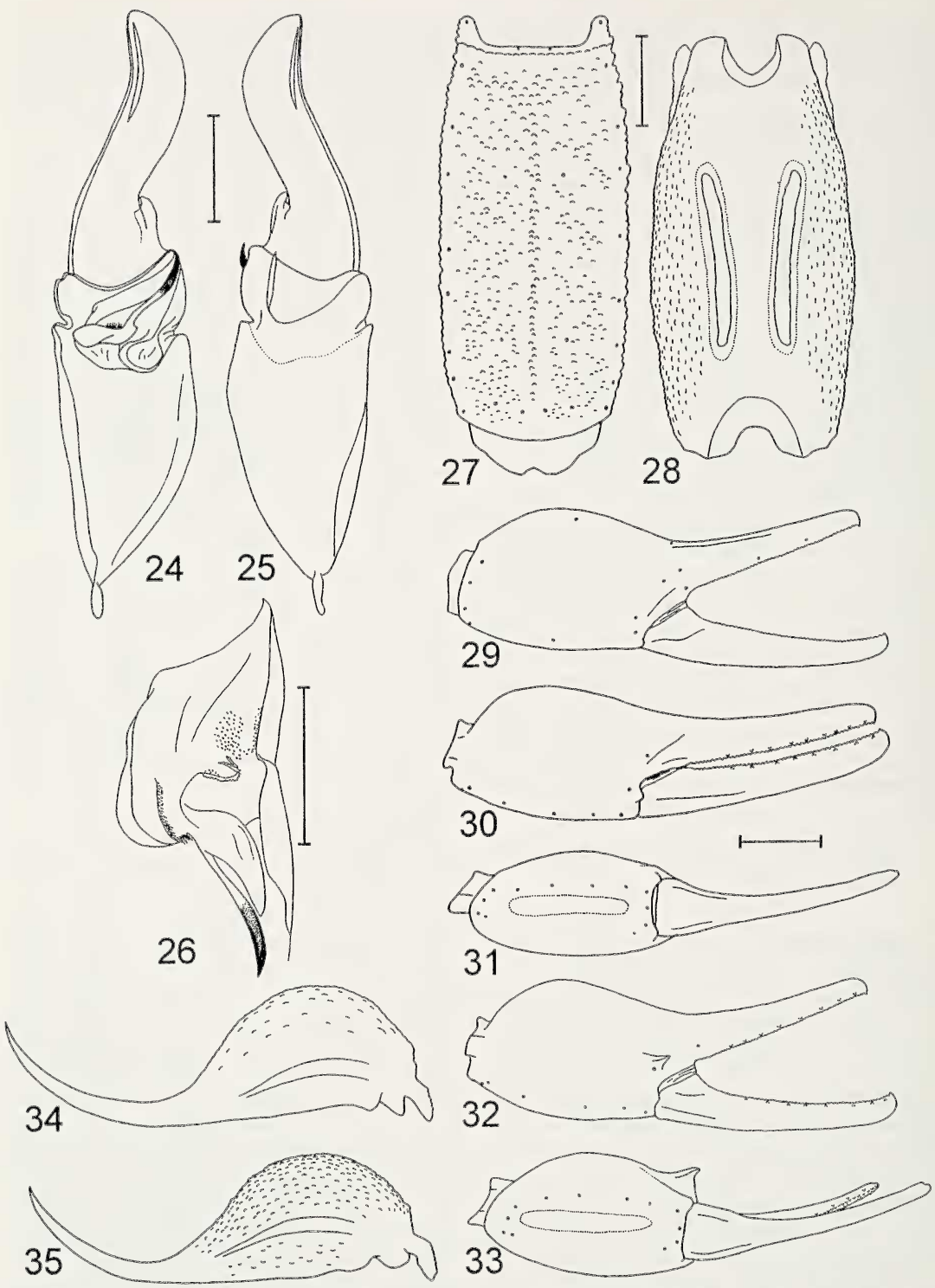
**Other material examined.**—CHILE: *Antofagasta Province*: Hornitos, 6 October 1983, 2 ♂ and 2 juveniles, Roig Alsina (ARA).

**Etymology.**—This species is named after the Argentinian arachnologist Camilo Iván Mattoni.

**Diagnosis.**—*Brachistosternus* (*L.*) *mattonii* is most closely related to *B.* (*L.*) *donosoi*, from which it can be distinguished by its more densely granular tegument, especially on the ventral surface of the metasomal segments (Figs. 41, 42); the lack of a telson gland; and the lower number of ventral setae on metasomal segment V (6–9 in *B. mattonii* vs. 14–19 in *B. donosoi*). There are also minor differences in the shape of the hemispermatophore (Figs. 24–26, 36–38), especially in the development of the internal spines. In *B. mattonii* they are distributed in two areas, one above the basal triangle and the other in front of it (Fig. 26), with a smooth area in the middle; whereas in *B. donosoi* the internal spines are restricted to a small area in front of the basal triangle (Fig. 38). In the rest of the species of the genus, these spines usually occupy the whole area above the basal triangle (Ojanguren Affilastro & Roig Alsina 2001) or they are absent, as in the Andean species of the subgenus *Leptosternus* (Roig Alsina 1977; Ochoa & Acosta 2002).

**Description.**—*Color:* Yellow with some spots on the carapace and the tergites. Carapace with a dark stripe from the lateral ocelli to the postocular furrow; ocular tubercle black; the rest lacking pigmentation. Tergites with three spots, two lateral and one median that join in some specimens. Sternites, metasomal segments, telson, pedipalps, and pectines unpigmented. Some specimens are almost completely unpigmented.

*Morphology:* Measurements of male holotype (MACN-Ar 10235) and female paratype (MACN-Ar 10236) in Table 1. *Prosoma*: Chelicerae with two subdistal teeth in the movable finger; anterior edge of the carapace with a slight median bulge and four setae, one on each side and two in the middle; tegument densely granular; anterior and posterior longitudinal sulcus, lateral sulcus and postocular furrow deeply marked; ocular tubercle in the middle of the carapace with a slight interocular sulcus, median ocelli two diameters apart with a seta behind each. *Sternum*: Sternum type 2 (Soleglad & Fet 2003), much wider than long; apex width equal to posterior width; posterior emargination quite well developed, with convexed lateral lobes conspicuously separated. *Mesosoma*: Tergites I–VI finely granular near the anterior margin and densely granular near the posterior margin; VII finely granular medially, the rest densely granular, with two posterolateral carinae. *Metasoma*: segments I–III: ventral and lateral




Figures 24–35.—*Brachistosternus* (*Leptosternus*) *mattonii*: 24. Left hemispermatophore, ventral aspect; 25. Left hemispermatophore, dorsal aspect; 26. Left hemispermatophore, detail of the lobe region; 27. Fifth metasomal segment, male, ventral aspect; 28. Fifth metasomal segment, dorsal aspect; 29. Right pedipalpal chela, female, retrolateral aspect; 30. Left pedipalpal chela, female, prolateral aspect; 31. Left pedipalpal chela, female, ventral aspect; 32. Left pedipalpal chela, male, prolateral aspect; 33. Left pedipalpal chela, male, ventral aspect; 34. Telson, female, lateral aspect; 35. Telson, male, lateral aspect. Scale bars = 1 mm.

surfaces densely granular, dorsally finely granular, dorsosubmedian, dorsolateral and median lateral carinae extend the entire length of the segment; segment IV: dorsally finely granular, lateral surfaces densely granular, ventrally densely granular with a large number of scattered setae, each one in a depression with smooth tegument (Fig. 41); segment V: ventral surface irregularly granular, ventromedian and ventrolateral carinae extend the entire length of the segment; dorsal and lateral surfaces finely granular or smooth; ventral setae usually comprising 3 rows (Fig. 27): 1 basal row of 2–4 setae, and 2 posterior rows of 1 or 2 setae, in one specimen there is an additional row of 2 setae; in males the caudal glands are long and narrow (Fig. 28). The juveniles and the females of the species are less granular than males. *Telson*: Densely granular in males (Fig. 35) and with scarce granulation in females (Fig. 34); vesicle with rounded ventral surface; aculeus slightly curved, of the same length as the vesicle; in males the telson gland is absent, but there is a small circular depression on the dorsal surface of the vesicle. *Pedipalps*: Trichobothrial pattern, neobothriotaxic major type C: femur with 3 trichobothria: 1 *d,* 1 *i* and 1 *e*; patella with 3 ventral trichobothria, 2 dorsal trichobothria, 1 internal trichobothrium, and 13 external trichobothria: 3 *et,* 1 *est,* 2 *em,* 2 *esb* and 5 *eb*; chela with 27 trichobothria: 1 *Est,* 5 *Et,* 5 *v,* 1 *Esb,* 3 *Eb,* 1 *Dt,* 1 *Db,* 1 *et,* 1 *est,* 1 *esb,* 1 *eb,* 1 *dt,* 1 *dst,* 1 *dsb,* 1 *db,* 1 *ib,* 1 *it*; no intraspecific variation has been observed in these characters. Femur scarcely granular, ventrointernal, ventroexternal, and dorsointernal carinae well developed, patella scarcely granular; ventrointernal and ventroexternal carinae well developed; chela stout with long fingers, tegument finely granular or smooth, with a very well developed ventrointernal carina (Figs. 29–33); in males the prolateral apophysis is well developed; movable finger with a central row of granules and 7 or 8 internal and external granules. *Legs*: Finely granular; telotarsi I and II with the inner ungue 5 to 10% shorter than the external one. *Hemispermatophore*: Distal lamina thick, slightly curved, approximately the same size as the basal portion (Figs. 24 & 25); cylindrical apophysis well developed, longer than the laminar apophysis; basal triangle well developed, formed by three or four crests (Fig. 26); internal spines distributed in two areas, one above the basal triangle and the other in front of it; basal spines well developed; row of spines well developed, these spines can be ramified in some specimens.

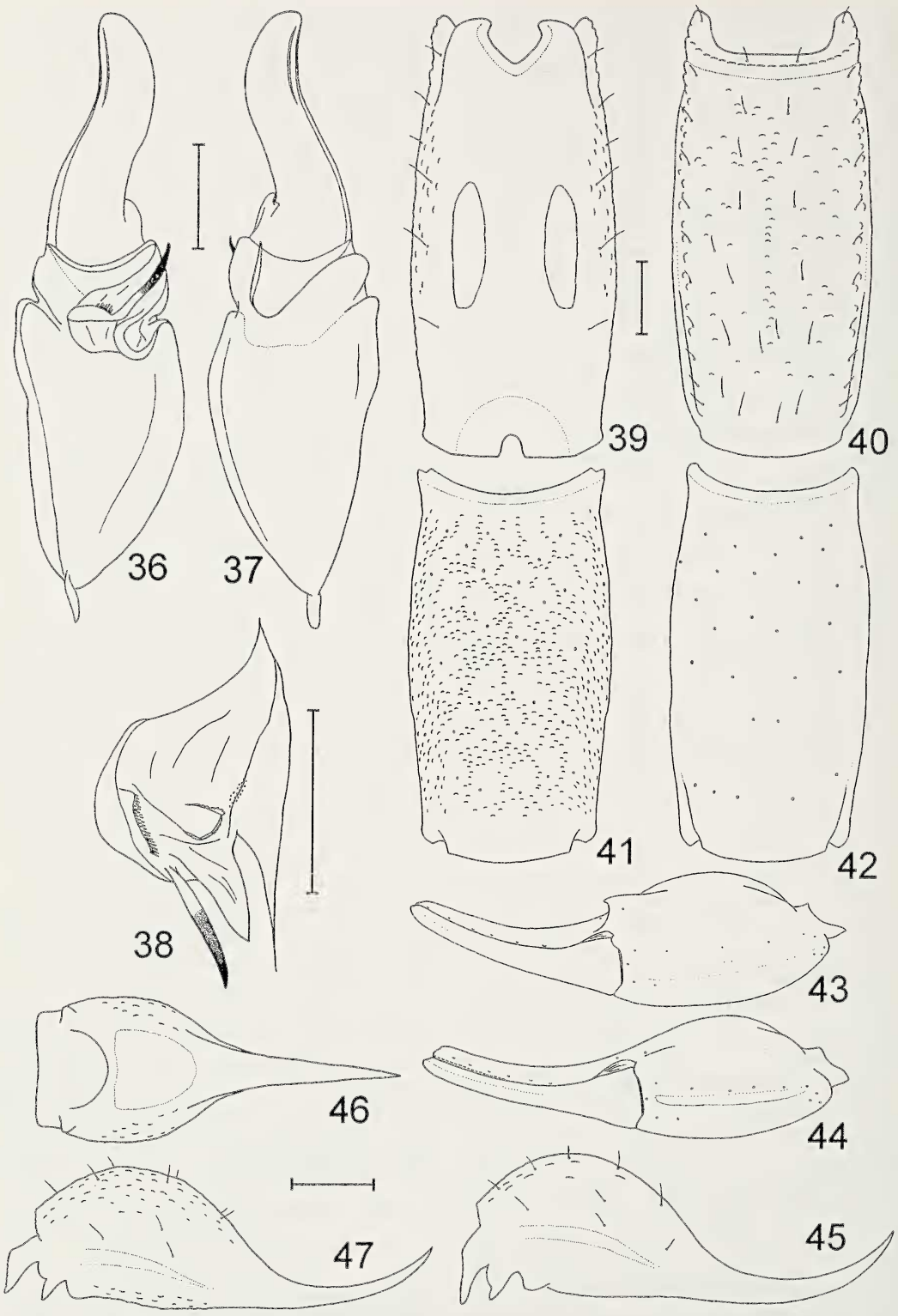
**Variation.**—Total length in males, 49–58 mm ($n$ = 4; mean = 54.25) and 53 mm in the only studied female. Pectines with 36–41 pectinal teeth in males ($n$ = 4, median = 39) and 28–29 in the only studied female. Length/width ratio of the fifth metasomal segment 2 to 2.11 in males ($n$ = 4; mean = 2.06) and 2.05 in the only studied female. Length/height ratio of the pedipalpal chela 2.90–3.11 in males ($n$ = 4; mean = 2.98) and 3.13 in the only studied female. Telotarsus I with 3 or 4 ventrointernal setae ($n$ = 8; median = 3), and 7 or 8 dorsal setae ($n$ = 8; median = 8), no ventroexternal setae have been observed. Telotarsus II with 3–5 ventrointernal setae ($n$ = 8; median = 4), 3–5 ventroexternal setae ($n$ = 8; median = 4) and 7–9 dorsal setae ($n$ = 8; median = 7). Telotarsus III with 6 or 7 ventrointernal setae ($n$ = 8; median = 7), 4–6 ventroexternal setae ($n$ = 8; median = 6) and 9–11 dorsal setae ($n$ = 8; median = 10). Basitarsus III with 7 or 8 dorsal setae ($n$ = 8; median = 7). Telotarsus IV with 4 or 5 ventrointernal setae ($n$ = 8; median = 5), 4 or 5 ventroexternal setae ($n$ = 8; median = 5) and 4–6 dorsal setae ($n$ = 8; median = 6). Fourth metasomal segment with 28–36 ventral setae ($n$ = 7; median = 34). Fifth metasomal segment with 8 ventrolateral setae ($n$ = 8), and 8 or 9 lateral setae ($n$ = 7; median = 8).

**Distribution.**—This species has only been collected at three coastal localities in northern Chile: Hornitos and Antofagasta, both in Antofagasta Province; and Alto Patache, in Iquique Province (Fig. 58). Northerly, in coastal areas of southern Peru, this species is replaced by *B.* (*L.*) *turpuq* Ochoa 2002 (Ochoa 2002); southerly, in central Chile *B. mattonii* is replaced by *B.* (*L.*) *roigalsinai* Ojanguren Affilastro 2003 and *B.* (*L.*) *sciosciae* Ojanguren Affilastro 2003 (Ojanguren Affilastro 2003).

*Brachistosternus* (*Leptosternus*) *donosoi*
Cekalovic 1974
Figs. 36–40, 42–47, 58

*Brachistosternus* (*Leptosternus*) *donosoi* Cekalovic 1974: 250–252.

**Type material.**—Holotype male, CHILE, *Tarapaca Province,* Pampa del Tamarugal, 10




Figures 36–47.—36–40, 42–47. *Brachistosternus* (*Leptosternus*) *donosoi*: 36. Left hemispermatophore, ventral aspect; 37. Left hemispermatophore, dorsal aspect; 38. Left hemispermatophore, detail of the lobe region; 39. Fifth metasomal segment, male, dorsal aspect; 40. Fifth metasomal segment, ventral aspect; 42. Fourth metasomal segment, male, ventral aspect; 43. Right pedipalpal chela, male, ventral aspect; 44.

km E Pica (20°30′S, 69°21′W) (MZUC 530, not examined).

**Description.**—*Color:* Yellow with some spots on the carapace and the tergites. Carapace with a dark stripe from the lateral ocelli to the postocular furrow; ocular tubercle black; the rest lacking pigmentation. Tergites with two faint lateral spots. Sternites, metasomal segments, telson, pedipalps, and pectines unpigmented. Some specimens are almost completely unpigmented.

*Morphology:* Measurements a of a male specimen (AAOA) and female specimen (AMNH) in Table 2. *Prosoma*: Chelicerae with two subdistal teeth in the movable finger; anterior edge of the carapace with a slight median bulge, tegument densely granular; anterior and posterior longitudinal sulcus, lateral sulcus and postocular furrow deeply marked; ocular tubercle in the middle of the carapace with a slight interocular sulcus, median ocelli two diameters apart with a seta behind each. *Sternum*: Sternum type 2 (Soleglad & Fet 2003), much wider than long; apex width equal to posterior width; posterior emargination quite well developed, with convexed lateral lobes conspicuously separated. *Mesosoma*: Tergites: I–VI finely granular near the anterior margin and finely granular near the posterior margin in males, smooth in females; VII densely granular, with two posterolateral carinae. *Metasoma*: Segments I–III: ventral and lateral surfaces densely granular, dorsally finely granular, dorsosubmedian, dorsolateral and median lateral carinae extend the entire length of the segment; segment IV: dorsally finely granular, lateral surfaces densely granular, ventrally smooth with a large number of scattered setae (Fig. 42); segment V: ventral surface smooth near the anterior margin and irregularly granular in the second half, the ventromedian carina is weakly developed or absent and the ventrolateral carinae extend throughout the entire length of the segment (Fig. 40); the ventral setae usually comprise 5 rows: 2 basal rows of 4–6 setae and 3 or 4 posterior rows of 2–4 setae; dorsal and lateral surfaces finely granular or smooth; in males, the caudal glands occupy more than 60% of the dorsal surface (Fig. 39). *Telson*: Densely granular in males (Fig. 47) and with scarce granulation in females (Fig. 45); vesicle with rounded ventral surface; aculeus slightly curved, of the same length as the vesicle; in males the telson gland is almost triangular (Fig. 46). *Pedipalps*: Trichobothrial pattern, neobothriotaxic major type C: femur with 3 trichobothria: 1 *d*, 1 *i* and 1 *e*; patella with 3 ventral trichobothria, 2 dorsal trichobothria, 1 internal trichobothrium, and 13 external trichobothria: 3 *et*, 1 *est*, 2 *em*, 2 *esb* and 5 *eb*; chela with 27 trichobothria: 1 *Est*, 5 *Et*, 5 *v*, 1 *Esb*, 3 *Eb*, 1 *Dt*, 1 *Db*, 1 *et*, 1 *est*, 1 *esb*, 1 *eb*, 1 *dt*, 1 *dst*, 1 *dsb*, 1 *db*, 1 *ib*, 1 *it*; no intraspecific variation has been observed in these characters. Femur scarcely granular, ventrointernal, ventroexternal, and dorsointernal carinae well developed, patella scarcely granular; ventrointernal and ventroexternal carinae well developed; chela stout with long fingers, tegument finely granular or smooth, with a very well developed ventrointernal carina (Figs. 43 & 44); in males the prolateral apophysis is well developed; movable finger with a central row of granules and 7 or 8 internal and external granules. *Legs*: Finely granular; telotarsi I and II with the inner ungue 10–15% shorter than the external one. *Hemispermatophore*: Distal lamina thick and of the same proportions as the basal portion (Figs. 36 & 37); cylindrical apophysis well developed, and longer than the laminar apophysis; basal triangle well developed formed by three or four crests; internal spines poorly developed reduced to a small area in front of the basal triangle (Fig. 38); basal spines well developed; row of spines well developed.

**Variation.**—Total length in males, 56–64 mm ($n$ = 8; mean = 59.5), 53–62 mm in females ($n$ = 9; mean = 59.20). Pectines with 28–33 teeth in males ($n$ = 6; median = 32), 25–31 in females ($n$ = 9; median = 29). Length/width ratio of the fifth metasomal segment 2.10–2.57 in males ($n$ = 5; mean = 2.34), 1.95–2.35 in females ($n$ = 5; mean = 2.21). Length/height ratio of the pedipalpal

←

Right pedipalpal chela, female, ventral aspect; 45. Telson, female, lateral aspect; 46. Telson, male, dorsal aspect; 47. Telson, male, lateral aspect. 41. *Brachistosternus* (*L.*) *mattonii*, fourth metasomal segment, male, ventral aspect. Scale bars = 1 mm.

Table 2.—Measurements (mm), number of pectinal teeth and telotarsal setae: of a male specimen and a female specimen of *Brachistosternus artigasi*, *B. donosoi* and *B. negrei*.

| | *Br. (L.) artigasi* | | *Br. (L.) donosoi* | | *Br. (L.) negrei* | |
|---|---|---|---|---|---|---|
| | Male (ARA) | Female (AMNH) | Male (AAOA) | Female (AMNH) | Male (MACN) | Female (MACN) |
| Total length | 53.81 | 55.22 | 56.27 | 59.07 | 55.78 | 65.37 |
| Carapace, length | 6.2 | 6.53 | 6.65 | 7.32 | 6.54 | 7.76 |
| Carapace, anterior width | 3.87 | 4.13 | 4.26 | 4.66 | 4.68 | 6.06 |
| Carapace, posterior width | 5.8 | 6.33 | 6.92 | 7.45 | 6.7 | 8.65 |
| Mesosoma, total length | 17.42 | 18.62 | 15.96 | 17.02 | 14.67 | 18.75 |
| Metasoma, total length | 23.59 | 24.07 | 26.34 | 27.41 | 34.57 | 38.86 |
| Metasomal segment I, length | 3.6 | 4 | 3.99 | 4.66 | 4.04 | 4.44 |
| Metasomal segment I, width | 4.13 | 3.93 | 4.12 | 4.66 | 4.44 | 5.41 |
| Metasomal segment I, height | 3.4 | 3.2 | 3.33 | 3.72 | 3.39 | 4.04 |
| Metasomal segment II, length | 4.33 | 4.47 | 4.66 | 4.92 | 4.84 | 5.66 |
| Metasomal segment II, width | 3.87 | 3.6 | 3.72 | 3.99 | 4.28 | 4.12 |
| Metasomal segment II, height | 3.2 | 3.13 | 3.33 | 3.59 | 3.55 | 4.04 |
| Metasomal segment III, length | 4.33 | 4.47 | 5.32 | 5.19 | 5.25 | 5.66 |
| Metasomal segment III, width | 3.67 | 3.47 | 3.59 | 3.72 | 4.04 | 4.68 |
| Metasomal segment III, height | 3.13 | 3 | 3.19 | 3.46 | 3.55 | 4.04 |
| Metasomal segment IV, length | 5.33 | 5.13 | 5.99 | 5.99 | 6.06 | 6.46 |
| Metasomal segment IV, width | 3.53 | 3.2 | 3.33 | 3.46 | 3.88 | 4.61 |
| Metasomal segment IV, height | 2.8 | 2.67 | 2.93 | 3.19 | 3.31 | 3.96 |
| Metasomal segment V, length | 6 | 6 | 6.38 | 6.65 | 4.68 | 8.08 |
| Metasomal segment V, width | 3.47 | 3.13 | 3.33 | 3.33 | 2.02 | 4.44 |
| Metasomal segment V, height | 2.6 | 2.33 | 2.79 | 2.79 | 1.69 | 3.64 |
| Telson, length | 6.6 | 6 | 7.32 | 7.32 | 7.27 | 8.56 |
| Vesicle, length | 3 | 2.67 | 3.99 | 3.99 | 3.23 | 4.2 |
| Vesicle, width | 2.07 | 2.07 | 2.79 | 3.1 | 2.83 | 3.23 |
| Vesicle, height | 1.87 | 1.87 | 2.39 | 2.45 | 2.18 | 2.83 |
| Aculeus, length | 3.6 | 3.33 | 3.33 | 3.33 | 4.04 | 4.36 |
| Pedipalp, total length | 15.38 | 14.52 | 20.57 | 18.75 | 17.12 | 18.75 |
| Femur, length | 4 | 3.67 | 5.94 | 4.92 | 4.44 | 4.85 |
| Femur, width | 1.33 | 1.47 | 1.73 | 1.73 | 1.86 | 1.69 |
| Patella, length | 3.93 | 3.67 | 5.05 | 5.05 | 4.44 | 4.85 |
| Patella, width | 1.8 | 1.73 | 1.86 | 2.13 | 1.94 | 2.26 |
| Chela, length | 7.45 | 7.18 | 9.58 | 8.78 | 8.24 | 9.05 |
| Chela, width | 1.73 | 1.86 | 2.66 | 2.53 | 2.42 | 2.34 |
| Chela, height | 2.39 | 2.66 | 3.33 | 3.06 | 3.23 | 3.07 |
| Movable finger, length | 4.52 | 4.39 | 5.32 | 4.79 | 4.85 | 5.41 |
| Fixed finger, length | 3.99 | 3.99 | 4.92 | 4.52 | 4.2 | 4.98 |
| Number of pectinal teeth, left-right | 30-29 | 24-24 | 31-31 | 27-27 | 34-34 | 31-31 |
| Telotarsus I, ventrointernal setae | 3 | 3 | 3 | 3 | 2 | 2 |
| Telotarsus I, ventroexternal setae | 7 | 6 | 0 | 0 | 0 | 0 |
| Telotarsus I, dorsal setae | 9 | 9 | 7 | 8 | 7 | 8 |
| Telotarsus II, ventrointernal setae | 4 | 5 | 5 | 5 | 4 | 4 |
| Telotarsus II, ventroexternal setae | 4 | 4 | 4 | 3 | 2 | 1 |
| Telotarsus II, dorsal setae | 11 | 11 | 8 | 9 | 8 | 9 |
| Telotarsus III, ventrointernal setae | 11 | 12 | 8 | 8 | 6 | 6 |
| Telotarsus III, ventroexternal setae | 5 | 4 | 5 | 5 | 4 | 2 |
| Telotarsus III, dorsal setae | 11 | 11 | 12 | 11 | 6 | 5 |
| Telotarsus IV, ventrointernal setae | 4 | 5 | 5 | 5 | 4 | 5 |
| Telotarsus IV, ventroexternal setae | 5 | 5 | 5 | 5 | 4 | 4 |
| Telotarsus IV, dorsal setae | 6 | 5 | 5 | 6 | 5 | 5 |

chela 2.87–2.97 in males ($n$ = 5; mean = 2.91), 2.85–3.15 in females ($n$ = 5; mean = 3.03). Telotarsus I with 3 or 4 ventrointernal setae ($n$ = 10; median = 3), 0 or 1 ventroexternal setae ($n$ = 10; median = 0) and 7 or 8 dorsal setae ($n$ = 10; median = 7). Telotarsus II with 4 or 5 ventrointernal setae ($n$ = 10; median = 5), 3 or 4 ventroexternal setae ($n$ = 10; median = 4) and 7–10 dorsal setae ($n$ = 10; median = 9). Telotarsus III with 6–8 ventrointernal setae ($n$ = 10; median = 8), 5 or 6 ventroexternal setae ($n$ = 10; median = 5) and 11–13 dorsal setae ($n$ = 10; median = 12). Telotarsus IV with 4 or 5 ventrointernal setae ($n$ = 10; median = 5), 4 or 5 ventroexternal setae ($n$ = 10; median = 5) and 5 or 6 dorsal setae ($n$ = 10; median = 6). Fourth metasomal segment with 26–32 ventral setae ($n$ = 10). Fifth metasomal segment with 9 or 10 ventrolateral setae ($n$ = 10; median = 10), and 6 or 7 lateral setae ($n$ = 10; median = 6).

**Distribution.**—This species has been collected from 800–1400 m a.s.l. at Tarapacá province, in northern Chile (Fig. 58). Most of the localities where this species has been collected are placed at the "Pampa del Tamarugal"; and are related with forests of *Prosopis tamarugo* Philippi. This species was not found by the author in coastal areas of this province.

**Material examined.**—CHILE: *Tarapaca Province*: Fuerte Baquedano (20°11′S, 69°47′W), 26 December 1977, 2 ♂, 4 ♀ and 2 juveniles, Peña (AMNH); December 1978, 2 ♂, 6 ♀ and 7 juveniles, Peña (AMNH); Quebrada de Tarapaca (19°40′S, 69°10′W), 25 January 1992, 1 ♀ and 3 juveniles, Peña (AMNH); Dolores (19°40′S 69°57′W), 8 February 1992, 1 juvenile, Peña (AMNH); 25 Km. West Pica (20°31′S, 69°22′W), 6 December 2001, 1 ♂ and 1 juvenile, Ojanguren Affilastro & Korob (AAOA).

*Brachistosternus* (*Leptosternus*) *artigasi*
Cekalovic 1974
Figs. 14–23, 58

*Brachistosternus* (*Leptosternus*) *artigasi* Cekalovic 1974: 248–250.

**Type material.**—Holotype male, CHILE, *Coquimbo Province,* La Serena, Lomas de Peñuelas (29°54′S, 71°15′W) (MZUC 528, examined).

**Description.**—*Color:* General color dark yellow with a dusky pattern. Carapace with a dark stripe from the lateral ocelli to the postocular furrow; ocular tubercle black; the rest without pigmentation except for two posterolateral dark spots. Tergites with three spots, two lateral and a median spot, connected by a dark reticulated pigment. Sternites depigmented. Metasomal segments dorsally with two posterolateral dark spots and a median spot, connected by a dark reticulated pigment; segments I to III ventrally with two lateroventral stripes; IV with two lateroventral stripes and a thin median stripe, that converge with the lateroventral stripes in the posterior margin of the segment; V with two lateroventral stripes and a median stripe that converge in the posterior margin of the segment where there is abundant reticulated pigmentation. Telson faintly spotted on the ventral surface. Legs with some spots on the prolateral sides of the femur and patella. Pedipalps: femur, patella and chella with some spots on the retrolateral surface.

*Morphology:* Measurements a of a male specimen (ARA) and female specimen (AMNH) in Table 2. *Prosoma*: Chelicerae with two subdistal teeth in the movable finger; anterior edge of the carapace with a slight median bulge; tegument densely granular; anterior longitudinal sulcus slightly marked; posterior longitudinal sulcus, lateral sulcus and postocular furrow deeply marked; ocular tubercle medially situated on the carapace with a slight interocular sulcus, median ocelli two diameters apart with a seta behind each. *Sternum*: Sternum type 2 (Soleglad & Fet 2003), much wider than long; apex width equal to posterior width; posterior emargination quite well developed, with convexed lateral lobes conspicuously separated. *Mesosoma*: Tergites I to VI smooth near the anterior margin and finely granular near the posterior margin; VII densely granular, with two posterolateral carinae. *Metasoma*: Segment I: ventral surface smooth, lateral surface finely granular, dorsally smooth, dorsosubmedian, dorsolateral and median lateral carinae slightly marked, extend the entire length of the segment; segments II and III similar to segment I but less granular, with less well developed carinae; segment IV: dorsally smooth, lateral surfaces with sparse granulation, ventrally smooth with a large number of scattered setae; segment V: ventral surface irregularly granular, the ventromedian and ventrolateral carinae extend throughout the entire length of the seg-

ment (Fig. 18); the ventral setae usually comprise 3 rows: 1 basal row of 2–5 setae, 1 median row of 1 or 2 setae, and 1 posterior row of 1 or 2 setae; dorsal and lateral surfaces finely granular or smooth; in males, the caudal glands occupy approximately 50% of the dorsal surface (Fig. 17). *Telson*: Sparsely granular; vesicle with rounded ventral surface; aculeus slightly curved, slightly longer than the vesicle (Figs. 20 & 21); the dorsal gland of the telson is almost triangular, and in most specimens the posterior corner of this triangle is doubled (Fig. 19). *Pedipalps*: Trichobothrial pattern, neobothriotaxic major type C: femur with 3 trichobothria: 1 *d*, 1 *i* and 1 *e*; patella with 3 ventral trichobothria, 2 dorsal trichobothria, 1 internal trichobothrium, and 13 external trichobothria: 3 *et*, 1 *est*, 2 *em*, 2 *esb* and 5 *eb*; chela with 27 trichobothria: 1 *Est*, 5 *Et*, 5 *v*, 1 *Esb*, 3 *Eb*, 1 *Dt*, 1 *Db*, 1 *et*, 1 *est*, 1 *esb*, 1 *eb*, 1 *dt*, 1 *dst*, 1 *dsb*, 1 *db*, 1 *ib*, 1 *it*; no intraspecific variation has been observed in these characters. Femur smooth, ventrointernal and dorsointernal carinae poorly developed, patella scarcely granular and without carinae; chela stout with relatively short fingers, smooth tegument, with a very developed ventroexternal carina (Figs. 22 & 23); in males the prolateral apophysis is well developed; movable finger with a central row of granules and 7 or 8 internal and external granules. *Legs*: Smooth in females and finely granular in males; The inner ungue of telotarsi I and II are 5–10% shorter than the external one. *Hemispermatophore*: Distal lamina thick and shorter than the basal portion (Figs. 14 & 15); cylindrical apophysis well developed, and longer than the laminar apophysis; basal triangle well developed formed by three or four crests (Fig. 16); internal spines absent; basal spines well developed; row of spines well developed.

**Variation.**—Total length in males, 49–60 mm ($n$ = 10; mean = 53.9); 47–57 in females ($n$ = 6; mean = 50.8). Pectines with 25–31 pectinal teeth in males ($n$ = 11; median = 27); 22–29 in females ($n$ = 6; median = 25). Length/height ratio of the pedipalpal chela 3.00–3.23 in males ($n$ = 11; mean = 3.11); 2.75–2.91 in females ($n$ = 6; mean = 2.87). Telotarsus I with 3 or 4 ventrointernal setae ($n$ = 10; median = 3), 6–8 ventroexternal setae ($n$ = 10; median = 6) and 9 or 10 dorsal setae ($n$ = 10; median = 9). Telotarsus II with 3–5 ventrointernal setae ($n$ = 10; median = 5), 4–6 ventroexternal setae ($n$ = 10; median = 4) and 10 or 11 dorsal setae ($n$ = 10; median = 11). Telotarsus III with 10–13 ventrointernal setae ($n$ = 10; median = 12), 5–7 ventroexternal setae ($n$ = 10; median = 7) and 12–15 dorsal setae ($n$ = 10; median = 15). Telotarsus IV with 4 or 5 ventrointernal setae ($n$ = 10; median = 5), 4 or 5 ventroexternal setae ($n$ = 10; median = 5) and 5–7 dorsal setae ($n$ = 10; median = 5). Fourth metasomal segment with 30–35 ventral setae ($n$ = 5). Fifth metasomal segment with 9–13 ventrolateral setae ($n$ = 11; median = 12), and 9–13 lateral setae ($n$ = 5; median = 11). Length/width ratio of the fifth metasomal segment 2–2.26 ($n$ = 11; mean = 2.15).

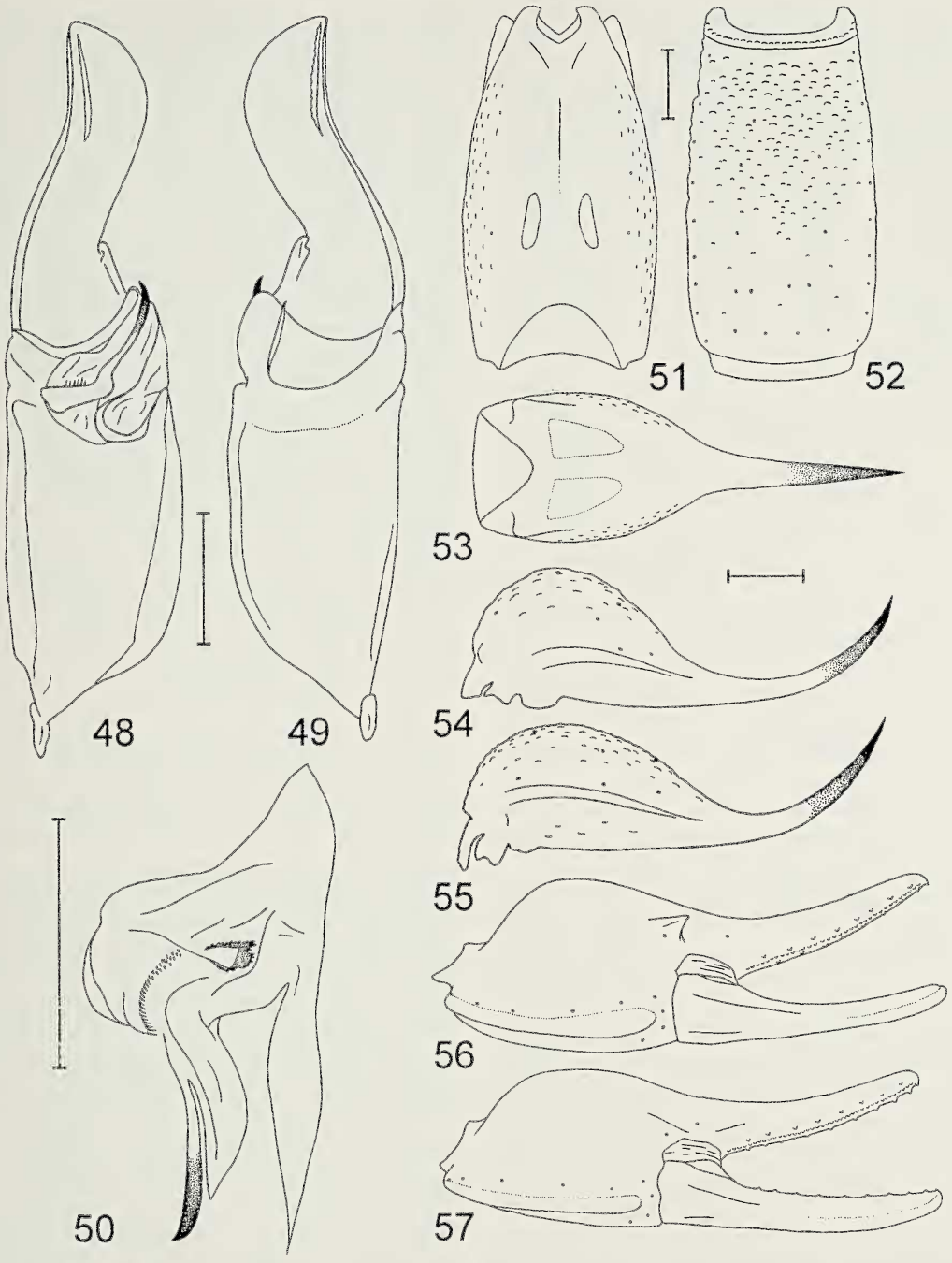
**Distribution.**—Besides the type locality at Lomas de Peñuelas, La Serena, this species has only been collected in other neighboring localities: Guanaqueras, 2, 10 and 20 km south of Coquimbo. All of these localities belong to the Coquimbo Province, and are very close to the coast (Fig. 58). At this latitude, only a few kilometers inland this species is replaced by *B. cekalovici*. The author failed to collect this species at Pan de Azúcar National Park and Caldera, both in Copiapó Province; where inhabits *B.* (*L.*) *sciosciae* (Ojanguren Affilastro 2003).

**Material examined.**—CHILE: *Coquimbo Province*: Holotype male, La Serena, Lomas de Peñuelas (29°54′S, 71°15′W), 5 September 1968, Cekalovic (MZUC 528); Guanaqueras (30°11′60″S, 71°25′60″W), 9 January 1984, 1 ♂, Roig Alsina (ARA); 25 November 1992, 1 ♂, Roig Juñent (IADIZA); 9 January 1984, 1 ♂, Maury (MACN-Ar); 10 km S Coquimbo (30°4′S, 71°22′30″W), 2 November 1983, 1 juvenile, Maury (MACN-Ar); 20 km. S. Coquimbo, 1 January, 1985, 13 juveniles, 8 ♂ and 10 ♀, Platnick & Francke (AMNH); 2 km S Coquimbo, 1 January 1985, 2 ♂ and 3 juveniles, Platnick & Francke (AMNH).

*Brachistosternus* (*Leptosternus*) *negrei*
Cekalovic 1975
Figs. 48–58

*Brachistosternus* (*Leptosternus*) *negrei* Cekalovic 1975: 69–72.

**Type material.**—Holotype male, CHILE, *Talca Province*, 22 miles N of Talca (35°17′S, 71°38′W) (MZUC 546, not examined). The holotype of this species is lost, but the author




Figures 48–57.—*Brachistosternus* (*Leptosternus*) *negrei*: 48. Left hemispermatophore, ventral aspect; 49. Left hemispermatophore, dorsal aspect; 50. Left hemispermatophore, detail of the lobe region; 51. Fifth metasomal segment, male, dorsal aspect; 52. Fifth metasomal segment, ventral aspect; 53. Telson, male, dorsal aspect; 54. Telson, female, lateral aspect; 55. Telson, male, lateral aspect; 56. Left pedipalpal chela, male, ventral aspect; 57. Left pedipalpal chela, female, ventral aspect. Scale bars = 1 mm.

was able to study one male specimen identified by Cekalovic as *B. negrei*.

**Description.**—*Color:* General color dark yellow with a dusky pattern. Carapace with a dark stripe from the lateral ocelli to the postocular furrow; ocular tubercle black; anterior edge of the carapace with dark spots; the rest without pigmentation except for two posterolateral dark spots. Tergites with two lateral spots, and a median clear stripe without pigmentation. Sternites depigmented. Metasomal segments dorsally with two posterolateral dark spots and a median spot; segments I–IV ventrally with two lateroventral stripes and two median stripes, in some specimens the median stripes can be absent; V with two lateroventral stripes and a median stripe, in some specimens the median stripe can be absent, but in very pigmented specimens there are three median stripes. Telson faintly spotted on the ventral surface. Legs with some spots on femur and patella. Pedipalps: femur and patella with some spots on the retrolateral surface.

*Morphology:* Measurements a of a male specimen (MACN-Ar) and female specimen (MACN-Ar) in Table 2. *Prosoma*: Chelicerae with two subdistal teeth in the movable finger; anterior edge of the carapace with a median bulge and six setae, two on each side and two in the middle; tegument densely granular in males, finely granular in females; anterior and posterior longitudinal sulcus, lateral sulcus and postocular furrow deeply marked; ocular tubercle medially situated on the carapace with a slight interocular sulcus, median ocelli one diameter apart. *Sternum*: Sternum type 2 (Soleglad & Fet 2003), much wider than long; apex width equal to posterior width; posterior emargination quite well developed, with convexed lateral lobes conspicuously separated. *Mesosoma*: Tergites I–VI smooth near the anterior margin and finely granular near the posterior margin; VII smooth medially, the rest densely granular, with two posterolateral carinae. *Metasoma*: segment I: ventral surface smooth, lateral surface with scattered granulation, dorsally smooth, dorsosubmedian, dorsolateral and median lateral carinae extend the entire length of the segment; segments II and III similar to segment I but less granular, with less well developed carinae and with four pairs of ventral setae; segment IV: dorsally smooth, lateral surfaces slightly granular, ventrally smooth with a large number of scattered setae; segment V: ventral surface smooth near the front margin and irregularly granular in the second half; the ventrolateral carinae extend throughout the entire length of the segment, but there is not a ventromedian carina (Fig. 52); the ventral setae usually comprise 5 rows: 1 basal row of 3–5 setae, 1 subbasal row of 2–4 setae, and 3 posterior rows of 1 or 2 setae; dorsal and lateral surfaces finely granular or smooth; in males the caudal glands occupy 15–20% of the dorsal surface (Fig. 51). *Telson*: Sparsely granular; vesicle with rounded ventral surface; aculeus slightly curved, of the same length as the vesicle (Figs. 54 & 55); the holotype of this species has a very conspicuous depression on the ventral surface of the telson (Cekalovic 1975, fig. 9), but it was not present in any of the specimens studied. The telson gland is divided into two separated halves (Fig. 53), but it is absent in almost 80% of the specimens. *Pedipalps*: Trichobothrial pattern, neobothriotaxic major type C: femur with 3 trichobothria: 1 *d*, 1 *i* and 1 *e*; patella with 3 ventral trichobothria, 2 dorsal trichobothria, 1 internal trichobothrium, and 13 external trichobothria: 3 *et*, 1 *est*, 2 *em*, 2 *esb* and 5 *eb*; chela with 27 trichobothria: 1 *Est*, 5 *Et*, 5 *v*, 1 *Esb*, 3 *Eb*, 1 *Dt*, 1 *Db*, 1 *et*, 1 *est*, 1 *esb*, 1 *eb*, 1 *dt*, 1 *dst*, 1 *dsb*, 1 *db*, 1 *ib*, 1 *it*; no intraspecific variation has been observed in these characters. Femur smooth, ventrointernal and dorsointernal carinae poorly developed, patella scarcely granular and without carinae; chela stout, with smooth tegument and a very developed ventroexternal carina (Figs. 56 & 57); in males the prolateral apophysis is well developed; movable finger with a central row of granules and 8–10 internal and external granules. *Legs*: Finely granular; telotarsi I and II with the inner ungue 5–10% shorter than the external. *Hemispermatophore*: Distal lamina thick and shorter than the basal portion (Figs. 48 & 49); cylindrical apophysis well developed, and longer than the laminar apophysis; basal triangle very well developed formed by three or four crests (Fig. 50); internal spines absent; basal spines well developed; row of spines well developed; distal crest undulated.

**Variation.**—Total length in males, 50–66 mm ($n$ = 7; mean = 56.7), 55–68 mm in females ($n$ = 7; mean 61.9). Pectines with 32–38 pectinal teeth in males ($n$ = 9; median = 33), 30–33 in females ($n$ = 10; median = 31).

Length/width ratio of the fifth metasomal segment 1.74–2.00 in males and females ($n$ = 14; mean = 1.87). Length/height ratio of the pedipalpal chela 2.64–2.96 in males ($n$ = 8; mean = 2.84), 2.96–3.13 in females ($n$ = 8; mean = 3.03). Telotarsus I with 1–4 ventrointernal setae ($n$ = 12; median = 2), 0 or 1 ventroexternal setae ($n$ = 12; median = 0) and 6–9 dorsal setae ($n$ = 12; median = 8). Telotarsus II with 4 or 5 ventrointernal setae ($n$ = 12; median = 4), 1–3 ventroexternal setae ($n$ = 12; median = 2) and 7 to 10 dorsal setae ($n$ = 12; median = 8). Telotarsus III with 5 to 7 ventrointernal setae ($n$ = 20; median = 6), 3–5 ventroexternal setae ($n$ = 12; median = 4) and 9–11 dorsal setae ($n$ = 20; median = 10). Telotarsus IV with 4–6 ventrointernal setae ($n$ = 12; median = 5), 2–5 ventroexternal setae ($n$ = 12; median = 4) and 5 or 6 dorsal setae ($n$ = 12; median = 5). Fourth metasomal segment with 27–33 ventral setae ($n$ = 8; median = 28). Fifth metasomal segment with 8–10 ventrolateral setae ($n$ = 20; median = 9); and 8–10 lateral setae ($n$ = 20; median = 8).

**Distribution.**—*Brachistosternus* (*L.*) *negrei* is the southernmost species of the genus in Chile. It has been collected in southern Chile, in Maule and Bio Bio provinces (Fig. 58).

**Material examined.**—CHILE: *Maule province*: Curico, Los Queñes (35°10′S, 70°47′60″W), 4 ♀ and 9 juveniles, 1 January 1984, Roig Alsina (ARA); 2 ♀, 3 juveniles and 1 ♂, Maury (MACN-Ar); Vilches (35°36′S, 71°12′W), 1 ♀, 7 January 1989, Maury (MACN-Ar); Curico, Las Tablas (34°58′60″S, 71°13′60″W), 2 ♀, 3 ♂ and 2 juveniles, 10–15 February 1985, Peña (AMNH); Maule, Cuyarranquil (west Cauquenes) (35°58′S, 72°20′60″W), 2 ♂, 1 ♀ and 2 juveniles, 24–31 January 1981, Peña (AMNH); Tonlemo, Talca (35°7′S, 72°20′60″W), 1 juvenile, 14–21 December 1984, Peña (AMNH); Linares, Bullileo (35°51′S, 71°35′60″W), 2 juveniles, 13 January 1979, Peña (AMNH). *Bio Bio Province*: Ñuble, Chillan (36°36′S, 72°7′W), 3 ♂ and 2 ♀, January 1970, Peña (AMNH); Ñuble, 8 km west San Fabián de Alico (36°32′60″S, 71°32′60″W), 1 ♂, 1 ♀ and 2 juveniles, 19 January 1985, Platnick & Francke (AMNH); 50 Km. west San Carlos (35°58′S,


58

Figure 58.—Map with the distribution of the Chilean species of the genus *Brachistosternus*.

71°37′60″W), 1 ♂, 26 December 1950, Ross & Michelbacher (MZUC).

## ACKNOWLEDGMENTS

I am grateful to Arturo Roig Alsina, Camilo Mattoni, Lorenzo Prendini, František Kovařík and Sergio Roig Juñent for loaning part of the specimens used in this paper. I am grateful to José A. Ochoa who provided me with some data about the Peruvian *Brachistosternus*. I am also grateful to Cristina Scioscia and Cristina Marinone for their help during the completion of the manuscript.

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*Manuscript received 31 March 2003, revised 5 January 2004.*